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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/670,291

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Miwa Kozawa

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11/12/2008

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EXAMINER

CHACKO DAVIS, DABORAH

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/670,291	Applicant(s) KOZAWA ET AL.	
	Examiner DABORAH CHACKO DAVIS	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,7,8 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7,8 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 5, 7-8, 13-18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Application Publication No. 2001-109165 (Kanda et al., hereinafter referred to as Kanda) in view of U. S. Patent No. 6,410,677 (Enoki et al., hereinafter referred to as Enoki).

Kanda, in the abstract, in [0001], [0013], [0017], [0019], [0020], discloses a coating material that fattens the resist pattern (resist pattern thickening material, includes an ArF resist such as acrylic resin) comprising a water-soluble resin, a non-ionic surfactant, and an organic solvent (claims 1-3, 5, and 13). Kanda, in [013], discloses that the water-soluble resin of the coating material is a polyvinyl alcohol (claim 6). Kanda, in [0013], discloses that the water-soluble resin is a heterocyclic compound such as a polyvinyl pyrrolidone (has a cyclic structure) (claims 7-8). Kanda, in [0020], discloses that the organic solvent is an alcohol solvent (claim 14). Kanda, in the abstract, in [0002], [0011], [0012], [0013], [0019], [0020], [0033], discloses forming a resist pattern (resist pattern to be thickened) for a semiconductor device, forming a coating material (enveloping layer, reference 3 of figures 1, and 2) on the formed resist pattern, wherein the coating material (resist pattern thickening material) fattens the

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resist pattern, said coating material includes a resin, a surfactant, and an organic solvent (claims 15-16, and 18). Kanda, in [0022], [0023], [0024], discloses that the developing processing is performed after the formation of the coating material on the resist pattern (claim 17).

The difference between the claims and Kanda is that Kanda does not disclose the surfactants recited.

Enoki, in col 2, lines 63-67, and in col 3, lines 1-30, discloses that the surfactant is either a non-ionic surfactant such as polyoxyethylene alkyl ether, or a cationic surfactant such as an alkyl amine salt, or an amphoteric surfactant such as betaine.

Therefore, it would be obvious to a skilled artisan to modify Kanda by employing at least one of the claimed surfactants taught by Enoki because Enoki, in col 2, lines 64-66, and in col 3, lines 1-30, discloses that the surfactant as component (A) enables the resin composition to be an insulating material.

3. Claims 19-20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Application Publication No. 2001-109165 (Kanda et al., hereinafter referred to as Kanda) in view of U. S. Patent No. 6,410,677 (Enoki et al., hereinafter referred to as Enoki) further in view of U. S. Patent No. 6,319,853 (Ishibashi et al., hereinafter referred to as Ishibashi).

Kanda, in the abstract, in [0002], [0011], [0012], [0013], [0019], [0020], [0033], discloses forming a resist pattern (resist pattern to be thickened, includes an ArF resist such as acrylic resin) for a semiconductor device, forming a coating material (enveloping layer, reference 3 of figures 1, and 2) on the formed resist pattern, wherein

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the coating material (resist pattern thickening material) fattens the resist pattern, said coating material includes a resin, a surfactant, and an organic solvent. Kanda, in [013], discloses that the water-soluble resin of the coating material is a polyvinyl alcohol (claim 6). Kanda, in [0013], discloses that the water-soluble resin is a heterocyclic compound such as a polyvinyl pyrrolidone (has a cyclic structure) (claim 19). Kanda, in [0011], discloses that the resist material (for forming the resist pattern, the resist pattern to be thickened) is an acrylic resist (claim 20).

The difference between the claims and Kanda is that Kanda does not disclose the surfactants recited.

Enoki, in col 2, lines 63-67, and in col 3, lines 1-30, discloses that the surfactant is either a non-ionic surfactant such as polyoxyethylene alkyl ether, or a cationic surfactant such as an alkyl amine salt, or an amphoteric surfactant such as betaine.

The difference between the claims and Kanda in view of Enoki is that Kanda in view of Enoki does not disclose using the resist pattern to pattern the underlying layer.

Ishibashi, in col 24, lines 2-25, discloses that the thickened resist pattern (second resist pattern, after developing the coating material formed on the resist pattern) is used as an etching mask to etch the underlying layer (semiconductor substrate).

Therefore, it would be obvious to a skilled artisan to modify Kanda by employing at least one of the claimed surfactants as taught by Enoki because Enoki, in col 2, lines 64-66, and in col 3, lines 1-30, discloses that the surfactant as component (A) enables the resin composition to be an insulating material. It would be obvious to a skilled artisan to modify Kanda in view of Enoki by employing the etch process suggested by

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Ishibashi because Kanda, in [0002], discloses that the resist pattern formed can be used as an etching resist mask to manufacture semiconductor devices and circuit boards.

Response to Arguments

4. Applicant's arguments filed July 25, 2008, have been fully considered but they are not persuasive. The 103 rejections made in the previous office action (paper no. 20080428) are maintained.

A) Applicants argue that Enoki's resin composition is used for insulating material.

Enoki is not depended upon to disclose the resin composition. Kanda is relied upon to disclose the claimed resin, surfactant, and organic solvent present in the resist pattern thickening material. Enoki is only relied upon to disclose the claimed materials used as surfactants.

B) Applicants argue that Enoki's resin is not water-soluble but alkali soluble.

Applicants recite that the resist pattern thickening material is either water-soluble or alkali soluble. Additionally, Enoki is not depended upon to disclose the claimed resist pattern thickening material. Kanda teaches a resist pattern thickening material that has a resin such as the claimed polyvinyl alcohol, and Kanda's resist pattern thickening material is water-soluble.

C) Applicants argue that Kanda does not disclose water-insoluble resin.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies

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(i.e., "a water-insoluble resin") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, claims 2, and 5, recite that the resin is water-soluble or alkali soluble.

D) Applicants argue that Enoki does not disclose water as the solvent for its insulating material, and that there is no motivation to combine Enoki with Kanda.

Kanda teaches an aqueous resin composition i.e., water is included in the composition (as a solvent). Enoki is not depended upon to disclose the claimed resin. Enoki is depended upon to disclose the claimed surfactant material. The motivation to combine Enoki with Kanda is discussed in paragraph no. 2.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daborah Chacko-Davis/
Examiner, Art Unit 1795

November 10, 2008.